



Multipollutant Stakeholder Group Meeting

12/11/2019



Welcome

- Rachael Hamilton, APCD Assistant Director

Introductions

- MPSG Co-chairs and Participants

Committee Processes & Logistics

- Michelle King, APCD Director of Program Planning

MPSG & Committees: Recommendations

- Committees will...
 - Explore and discuss existing initiatives, local and otherwise
 - Emission reduction strategies from all sectors
 - Health-based goals, information, and research efforts, including exposure reduction strategies
 - Awareness and education campaigns that promote air-friendly behavior and build support for air quality initiatives
 - Develop recommendations to build on existing efforts or to develop new ones
 - Present recommendations to MPSG
- MPSG will...
 - Come to consensus on final recommendations
 - Review and provide feedback on Final Report
 - Approve Final Report



MPSG & Committees: Timetable

- Anticipated* Meeting Timetable:
 - Committee Meetings - 1st meeting in December 2019 with bi-weekly meetings January – February 2020 (5-6 meetings)
 - Reconvene MPSG – March – April 2020 (2-3 meetings)
 - Review draft report and receive feedback via email – May 2020
 - Present Final Report and Recommendations to Air Pollution Control Board and Mayor's Office – June 2020

* Schedule may be adjusted based on Committee feedback



Committee Schedule – 1st meetings

■ Point Source Committee

- December 20th, 10:00 am – 11:30 am
- Edison Center, 1st floor, Edison Room

■ Area Source Committee

- December 19th, 11 am – 12:30 pm
- Edison Center, Suite 303, Conference Room B

■ Mobile Source Committee **Stay tuned for updates!*

- December 19th, 3:30 pm – 5:00 pm ???
- Edison Center, 1st floor, Edison Room ???

■ Health Committee

- December 16th, 11 am – 12:30 pm
- Edison Center, Suite 303, Conference Room A

■ Outreach and Education Committee

- December 18th, 3:30 pm – 5:00 pm
- Edison Center, Suite 303, Conference Room B

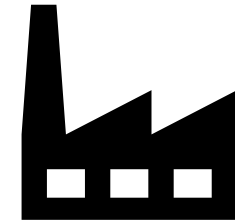


Emissions Reductions Initiatives – Examples

- Point Sources – Byron Gary, APCD
Regulatory Coordinator

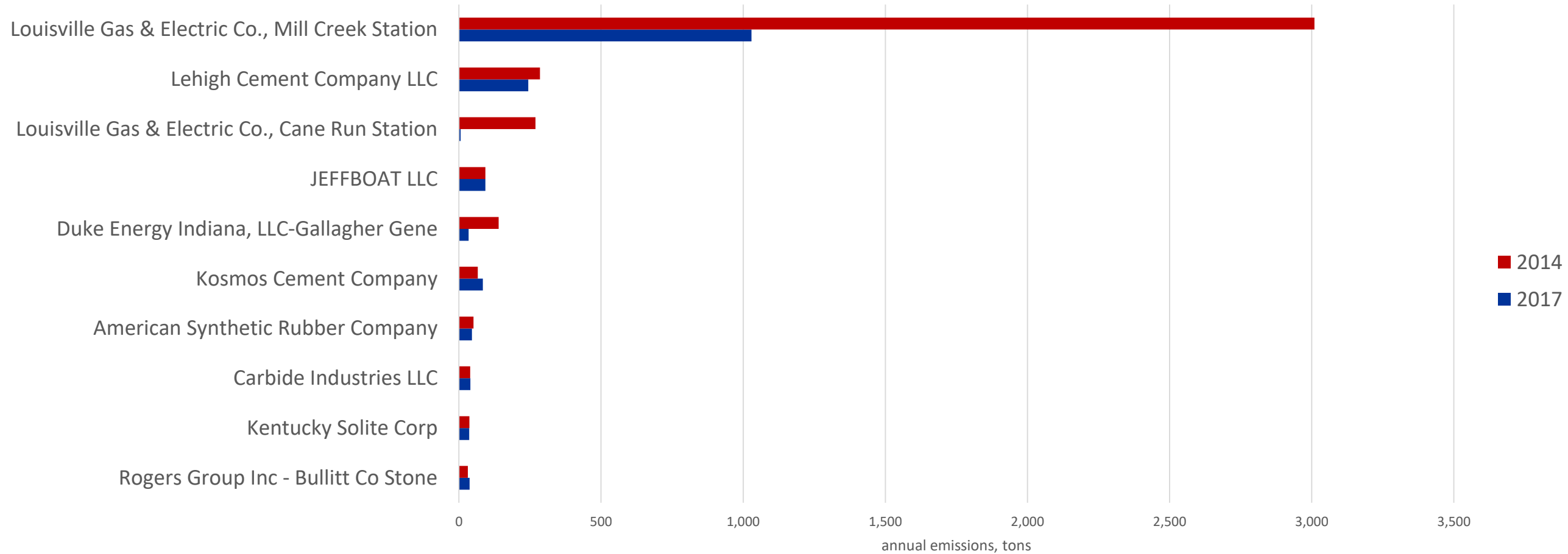
Point Source Control Programs

- Good Neighbor Provision – CAA §110(a)(2)(D)(i)(I)
 - NO_x Budget Trading Program (2003-2008)
 - Clean Air Interstate Rule (CAIR) (2009-2014)
 - Cross-State Air Pollution Rule (CSAPR) (2015-present)
- New Source Review (NSR) – CAA Title 1 Part C (PSD) & §172(c)(5), §173
- New Source Performance Standards (NSPS) - §111
- National Emissions Standards for Hazardous Air Pollutants/Maximum Available Control Technology Standards (NESHAP/MACT) - §112
- Strategic Toxic Air Reduction Program (STAR) – APCD Regs 5.20-5.30



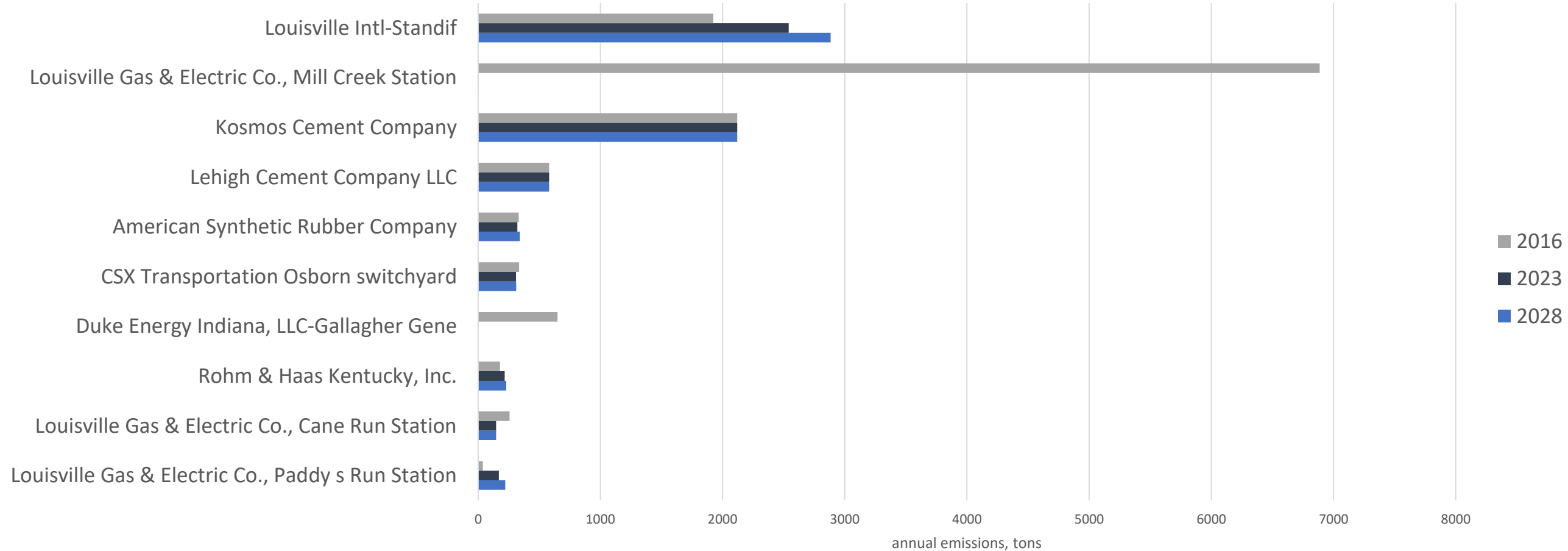
Point Source NO_x Emissions Reductions Achieved

Louisville Metropolitan Statistical Area (MSA)



Point Source NO_x Emissions Reductions Projected

Louisville Metropolitan Statistical Area (MSA)

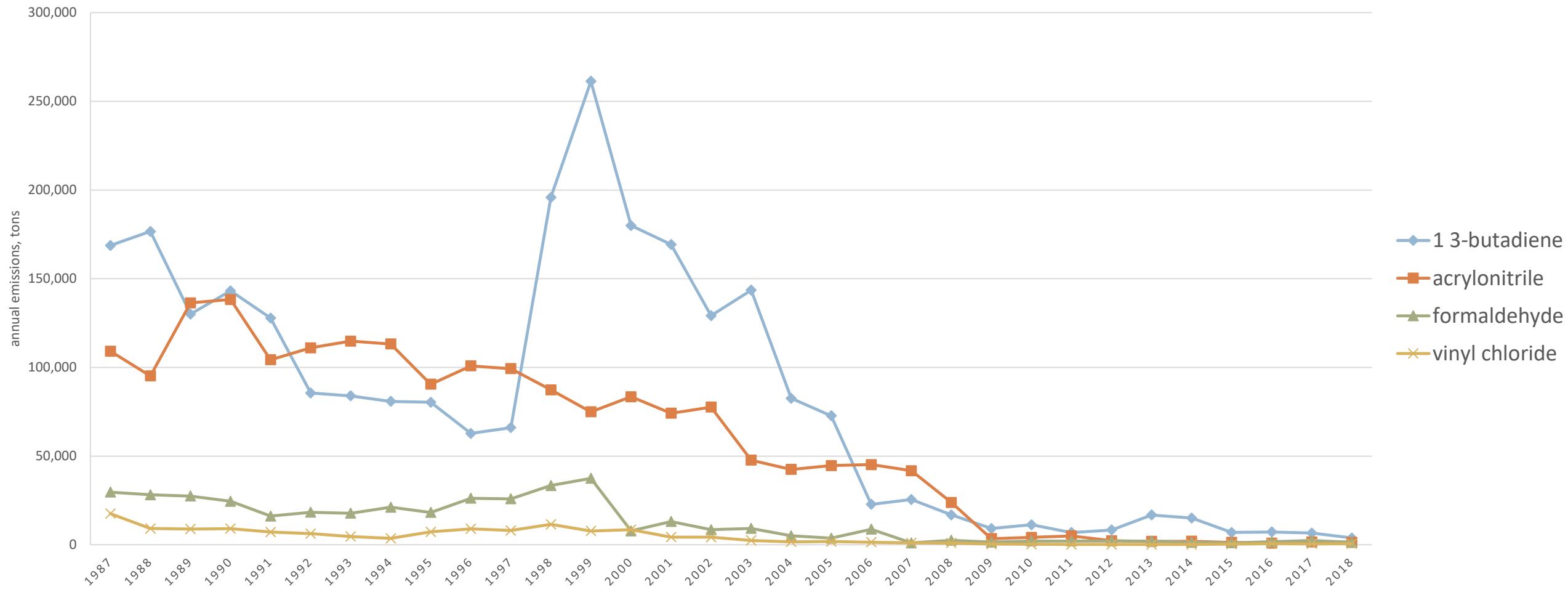


VOCs & Toxics – STAR Program Risk v. Reactivity

Compound*	Benchmark Ambient Concentration (BAC _c) (µg/m ³)	Maximum Incremental Reactivity (MIR)
Acrylonitrile	0.015	2.16
Benzene	0.45	0.69
Bromoform	0.91	n/a
1,3-Butadiene	0.033	12.21
Chloroform	0.043	0.020
Chloroprene	0.0033	n/a
1,4-Dichlorobenzene	0.091	0.171
Formaldehyde	0.077	9.24
Methylene Chloride	100	0.039
Perchloroethylene	3.85	0.029
Trichloroethylene	0.24	0.61
Vinyl Chloride	0.23	2.70

Toxic & Reactive VOC Emissions Reductions

Louisville/Jefferson County Metro



Emissions Reductions Initiatives – Examples

- Area Sources – Jayme Csonka, APCD Small Business Compliance Assistance Coordinator

Area Sources—Most Common Sectors

- Spray Coating
- Woodworking
- Dry Cleaning
- Body Shops
- Printing



coating.com.au



Wood Working Monthly



daltonsbusiness.com



Payette Auto Body



Brookdale Community College

Area Sources—Dry Cleaning and Graphic Arts

Emissions Inventory Data on VOC emissions, Jefferson County

Sector	2011 VOC Emissions	2014 VOC Emissions
Dry Cleaning	3.004 tons	15.303 tons
Graphic Arts	42.692 tons	3462.420 tons

Data Source: National Emissions Inventory

Area Source Dry Cleaning Facilities

Area Sources—Dry Cleaning Regulations

Federal Regulations

- National Perchloroethylene Air Emission MACT Standards
 - 40 CFR Part 63 Subpart M
 - Est. 5,700 tpy reduction in perc emissions
 - Reduced cancer risk
- Petroleum Dry Cleaners: New Source Performance Standards (NSPS)
 - 40 CFR Part 60 Subpart JJJ
 - Est. 5,000 tpy reduction in VOC emissions



inthehamper.com

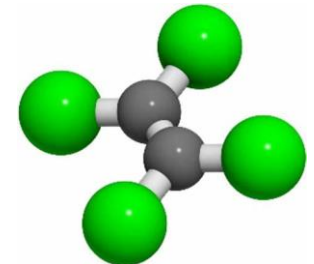
Area Sources—Dry Cleaning

Perchloroethylene (Perc) Cleaning

- Environmental Hazards of Perc
 - Hazardous Air Pollutant (HAP)
 - CAS 127-18-4
 - Photo-oxidizes in atmosphere to form chlorine
 - Groundwater Contaminant
 - Most abundant contaminant at Superfund Sites
- Health Effects of Perc
 - Impacts workers and nearby residents
 - Skin, eye, and respiratory irritation
 - Nervous system effects
 - Headaches, dizziness, impaired coordination
 - Liver and kidney damage
 - A likely human carcinogen



dormer.ie



ecsa.cefic.org

Other Names for Perchloroethylene

- Perc
- PCE
- Tetrachloroethylene
- Tetrachloroethene
- Ethylene tetrachloride
- Carbon dichloride

Area Sources—Dry Cleaning with Perchloroethylene

Dry Cleaning with perc was evaluated as part of the STAR Stakeholder Group

- Recommendations of the Area & Minor Source Committee
 - Enhanced enforcement
 - Regular Inspections
 - Timely notifications of violation
 - Annual training for all perc facilities
 - Kentucky Fabricare Association agreed to purchase District a leak detection sensor and provide training for facilities
 - District shall develop regulations to require minimum 4th generation technology to all installed and relocated perc machines
 - District shall establish deadline to completely phase out all <4th generation equipment



Vancouver Sun



jllaundry.com

Area Sources—Dry Cleaning Methods

Alternative Dry Cleaning Methods

- Wet Cleaning
 - Water and soap-based method
 - No HAPs or VOCs
- Liquid Carbon Dioxide
 - Eliminates Solvents
 - No HAPs
- D-5/Siloxane/Green Earth
 - Silicone-based
 - No HAPs or VOCs
- DF-2000
 - Hydrocarbon-based (Naphtha)
 - Contains VOCs



Matheson Gas



Clean Air Supply



drycleanersoap.com

Area Sources—Dry Cleaning Case Study

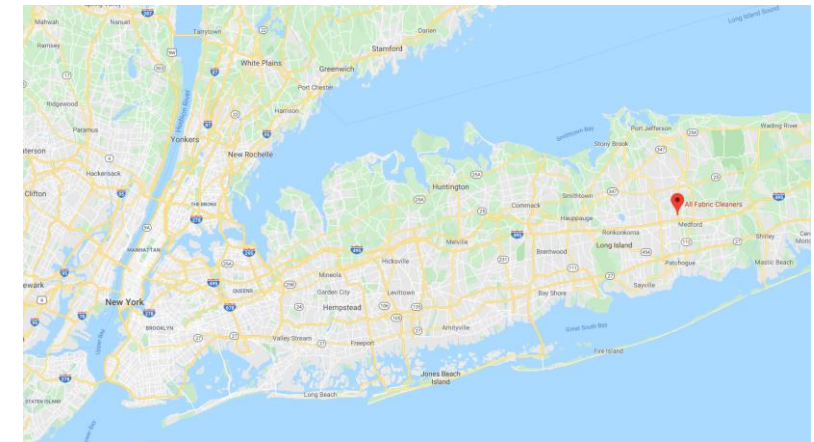
Case Study—All Fabric Cleaners in Farmingville, NY

- 15 Years of Perc use
 - Switched to Wet Cleaning method
- Assisted by New York State Pollution Prevention Institute's Wet Cleaning Conversion Program (grant-funded)
- **The Results**
 - 93% reduction in send-outs, re-dos, and claims
 - 36% increase in efficiency
 - more garments, less time
 - 42% reduction in electricity use
 - 100% elimination of Perc
 - 100% reduction (802 lbs) in hazardous waste disposal and Perc emissions
 - Annual cost savings of \$9,732

[EPA Report: Evaluation and Demonstration of Wet Cleaning Alternatives to Perchloroethylene-based Garment Care](#)



Google Maps



Google Maps

Area Sources—Dry Cleaning Resources

SBEAP Resources and Associations

- [Louisville—APCD Small Business Compliance Assistance](#)
- [Kentucky Environmental Compliance Assistance Program](#)

Kentucky Pollution Prevention Center

Consulting Agencies

Tools Available for Demonstrating Compliance and Reductions

- Permit-required recordkeeping
- Purchase records
- Compliance calendars

December 2019 DRY CLEANER NAME _____										ADDRESS _____									
Leak Detection										Condenser Temperature									
Conduct leak inspection tests weekly on all parts of the equipment.					1. Enter date of the inspections 2. Check equipment, circle "Y" if a leak is detected, "N" if a leak is not detected.					Enter outlet temperature weekly during cool down (should be less than 45°F or 7°C)									
Enter inspection date										Date					Outlet Temperature				
Hoses					Y N Y N Y N Y N Y N														
Pipe connections					Y N Y N Y N Y N Y N														
Fittings, couplings, and valves					Y N Y N Y N Y N Y N														
Door gasket and seating					Y N Y N Y N Y N Y N														
Pump					Y N Y N Y N Y N Y N														
Solvent tank and containers					Y N Y N Y N Y N Y N														
Water Separator					Y N Y N Y N Y N Y N														
Still/distillation					Y N Y N Y N Y N Y N														
Exhaust damper					Y N Y N Y N Y N Y N														
Diverter valve					Y N Y N Y N Y N Y N														
Filter gasket and seating					Y N Y N Y N Y N Y N														
All machine filters					Y N Y N Y N Y N Y N														
Sealed waste containers (wastewater, filters, lint, still bottoms)					Y N Y N Y N Y N Y N														
Repair leaks within 24 hours of detection. If parts are required for repair, order within two days, and complete installation within 5 days.																			
Parts ordered: Enter date																			
Parts received: Enter date																			
Repair Complete: Enter date																			
Hazardous Waste																			
Enter waste generated monthly																			
Cartridge filters replaced										# of filters									
Still bottoms generated										pounds									
Lint, wastewater filters										gallons									
Wastewater evaporated and/or collected in bucket																			
Wastewater treatment unit filter changed (enter date)																			
Carbon Adsorbers (enter dates CA Desorbed)																			
Waste Containers Labeled & Dated?										Y N									
Containment equipment inspected? Dry cleaning machine pan seal, wastewater treatment unit, waste containers, and new solvent										Y N									
PERC Purchases																			
Date:										Date:									
Gallons:										Gallons:									

December 2019						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6 <input type="checkbox"/> Temp logged <input type="checkbox"/> Inspect logged	7
8	9	10	11	12	13 <input type="checkbox"/> Temp logged <input type="checkbox"/> Inspect logged	14
15	16	17	18	19	20 <input type="checkbox"/> Temp logged <input type="checkbox"/> Inspect logged	21
22	23	24	25	26	27 <input type="checkbox"/> Temp logged <input type="checkbox"/> Inspect logged	28
29	30	31				

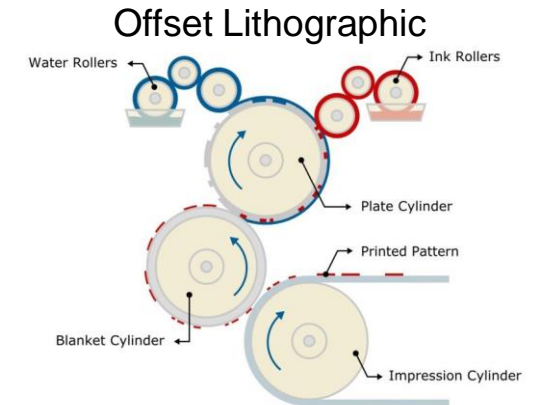
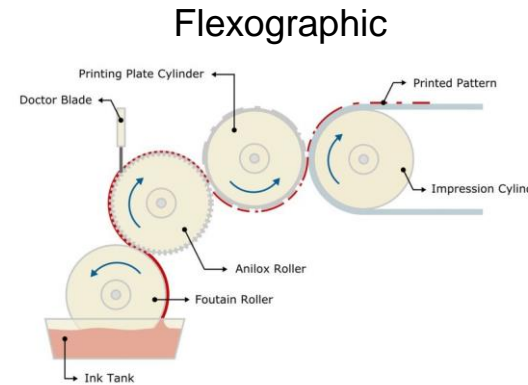
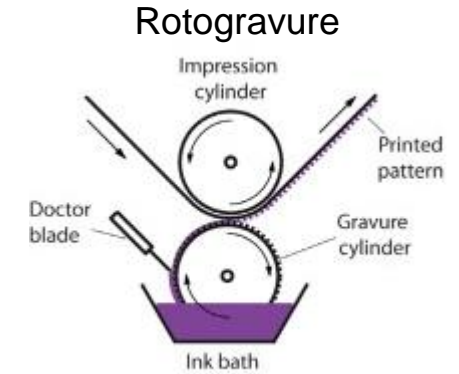
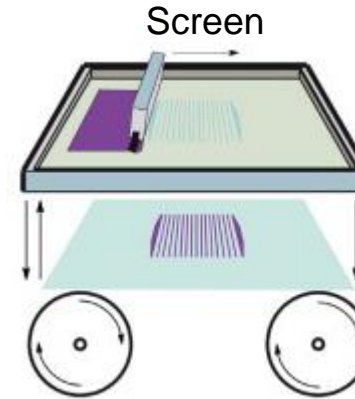
Oregon SBEAP

P2 and Compliance Assistance programs are often free and confidential!

Area Source Printing Facilities

Area Sources—Printing Regulations

- [The Printing and Publishing Industry: National Emission Standards for Hazardous Air Pollutants \(NESHAP\)](#)
 - [40 CFR 63, Subpart KK](#)
 - Est. 7,400 tpy HAP reductions
 - VOC reductions
- [Publication Rotogravure Printing \(Graphic Arts Industry\): New Source Performance Standards \(NSPS\)](#)
 - [40 CFR Part 60, Subpart QQ](#)
 - Est. 8,700 tpy VOC reductions
- [Printing Industry Sector Notebook](#)



Research Gate

Area Sources—Printing Pollution Prevention (P2) Recommendations

Inks

- Soy-based inks may replace oil-based inks
- Water-based inks curtail solvent (VOC) emissions
- Employ work practices that reduce fountain cleaning
- Non-drying sprays available to curtail drying during shutdowns
- Blend leftover inks to create black ink
- Enroll in a recycling program for waste ink

Solvents

- Avoid free samples
- Find a substitute for toxic aromatic solvents
- Only use solvents for cleaning inks and oils
- Use separate container of solvent for each color printing unit
- Limit amount of solvent used on cleaning rags
- Automatic blanket cleaners improve efficiency, reduce waste, and are safer for employees
- Enroll in a recycling program for spent solvent

Source: The Delaware Pollution Prevention Program in the Department of Natural Resources and Environmental Control

Area Sources—Printing Case Study

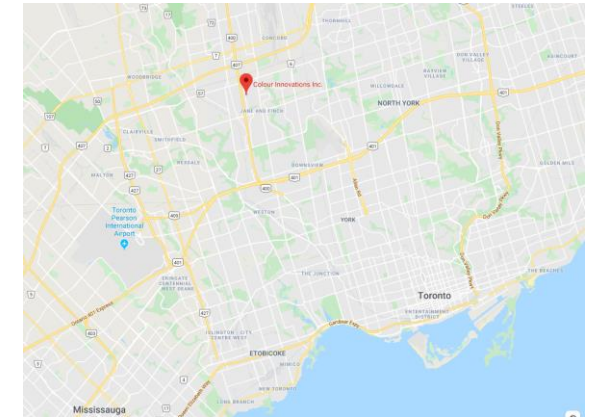


Case Study—Colour Innovations in Toronto, Ontario

- Facility reached out to the Toronto Region Sustainability Program
 - Multimedia P2 Assessment
- Investigated Process, Materials, and Equipment Efficiency
 - Installed automated equipment and filtration devices
 - Reconfigured some existing equipment
- **The Results**
 - 6.5 tpy reduction of VOC emissions
 - Eliminated 16 tons of hazardous waste annually
 - Eliminated 15 tons of process waste annually
 - Reduced manual labor
 - Increased consistency between blended batches of inks
 - Annual saving of \$40,000 (CDN)
 - Payback on financial investment within 9 months



Google Maps



Google Maps

Area Sources—Printing Resources

SBEAP Resources and Associations

- [Louisville—APCD Small Business Compliance Assistance](#)
- [Kentucky Environmental Compliance Assistance Program](#)

Kentucky Pollution Prevention Center

Consulting Agencies

Clean Air Act Guidelines and Standards for Solvent Use

Tools Available for Demonstrating Compliance & Reductions

- Permit-required recordkeeping
- Purchase records
- Compliance calendars

Emission Unit #	Name	Actual Usage Rate gal/month	Density (lbs/gal)	Pollutant	% by Weight	Emission Factor (lb/gal)	Actual Emissions Uncontrolled (Tons/month)	% Control Efficiency	Actual Emissions Controlled (Tons/month)
1	S-14318 OS PAN-363 GREEN	5	8.79536					70.00%	
				PM/PM10	91.06%	8.01	0.01		0.00
				VOC	8.94%	0.79	1.97E-03		NA
				Cobalt Tallate	5.00%	0.44	1.10E-03		NA
				Hydroquinone	1.00%	0.09	2.20E-04		NA
1	S-14697 OS PAN(R) 469 BROWN	5	8.99636					70.00%	
				PM/PM10	90.65%	8.16	0.01		0.00
				VOC	9.35%	0.84	2.10E-03		NA
				Cobalt Tallate	5.00%	0.45	1.12E-03		NA
				Hydroquinone	1.00%	0.09	2.25E-04		NA

P2 and Compliance Assistance programs are often free and confidential!

Emissions Reductions Initiatives – Examples

- Mobile Sources – Bradley Coomes, APCD Environmental Coordinator

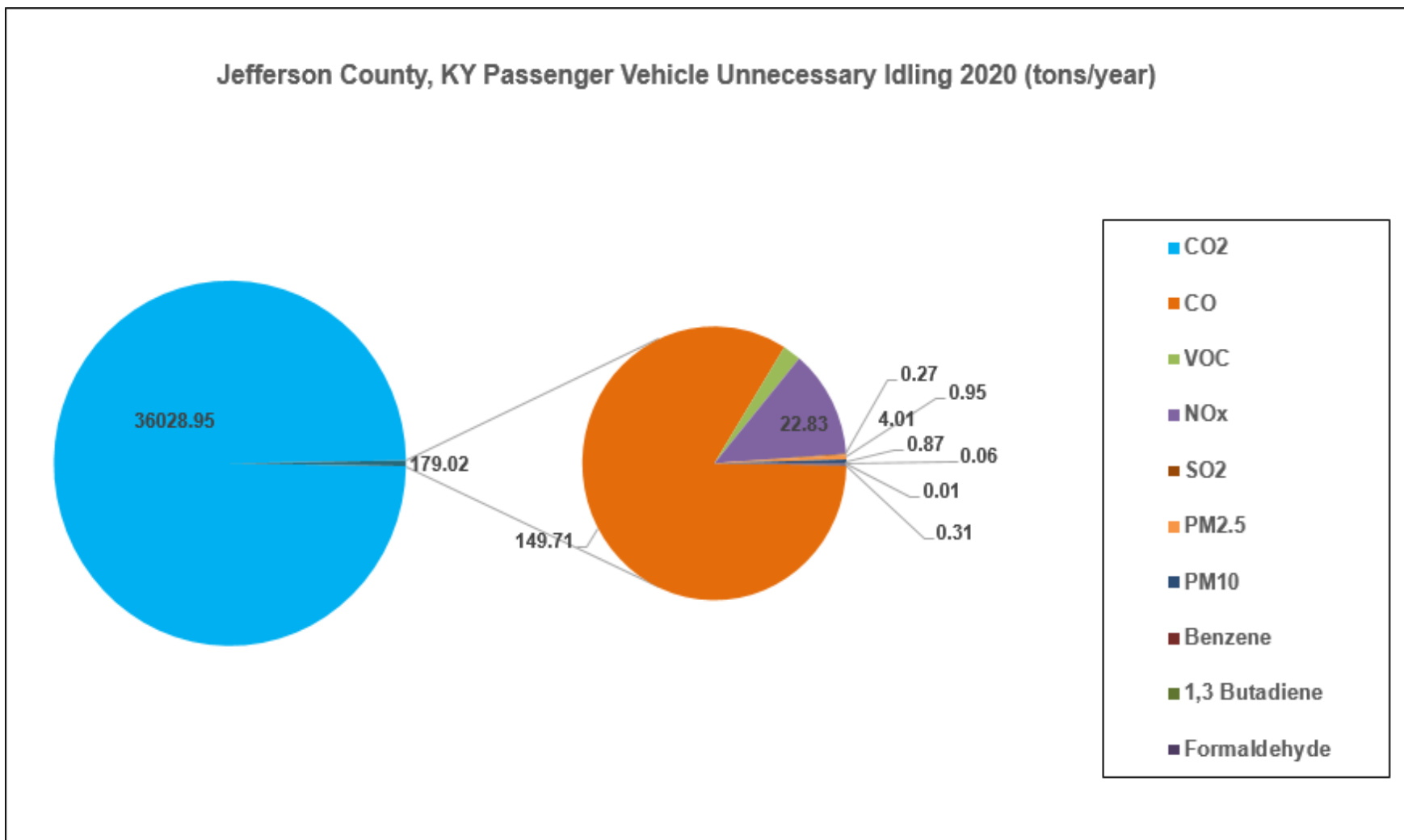
Idling Reduction Strategies

- Why reduce idling?
 - Idling can pollute more than when driving
 - We often idle in areas where people will be directly exposed to emissions (e.g., schools)
 - Idling wastes fuel and money
 - Idling puts undue wear on your vehicle's engine



- Three main types of strategies
 - General outreach – Idle Free Louisville
 - Targeted outreach – Idle Free Schools, Idle Free Businesses, Idle Free Neighborhoods
 - Regulatory – Minneapolis Anti-Idling Ordinance. Restricts idling of cars and other gas or diesel-powered vehicles to no more than three minutes in a one-hour period. Another portion of the ordinance limits idling of buses, trucks and other diesel engine-powered vehicles to no than five minutes in a one-hour period.

Projected Unnecessary Idling Emissions



Idling Reductions in Shipping/Freight

- According to the EPA, each year, long duration truck idling results in the following estimated emissions:
 - 180,000 tons of nitrogen oxides
 - 5,000 tons of particulate matter
 - 11 million tons of carbon dioxide
- EPA's SmartWay Program
 - Helps companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency.
 - Idling Reduction Technologies
 - Electrified parking spaces
 - Auxiliary power units
 - Battery operated heating/cooling system



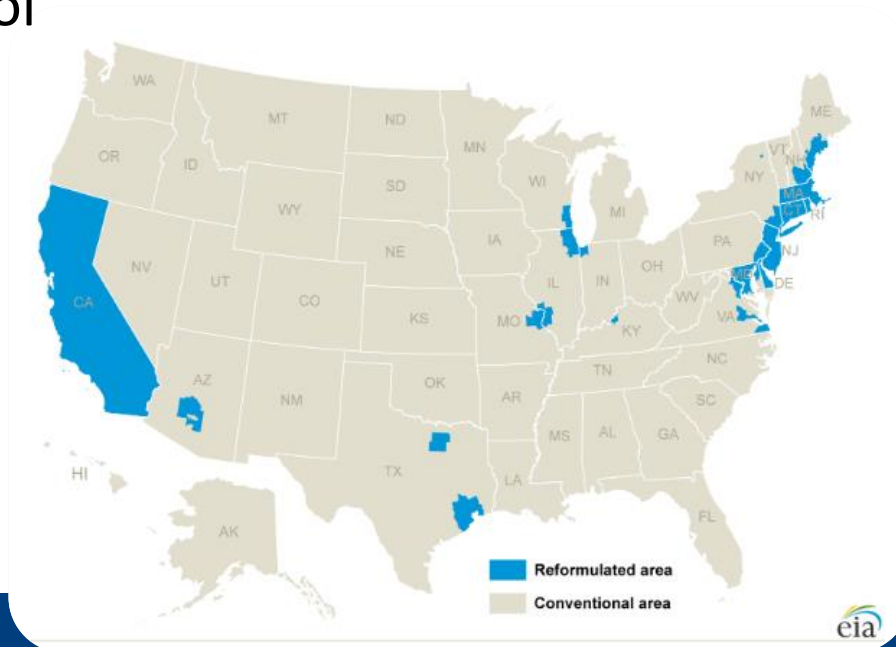
Reformulated Gasoline (RFG)

- Reformulated gas (RFG) is blended to burn more cleanly than conventional gasoline. It is used in Louisville to help reduce both ground-level ozone and air toxics.
- In 1995, Kentucky voluntarily opted into the RFG program to reduce the volatility of commercial gasoline during the summer ozone season.
- Louisville and parts of Bullitt and Oldham Counties rely on RFG as part of the plan required for maintaining the 1997 8-hour ozone NAAQS. As such, it is a required control measure under the federal Clean Air Act.



Reformulated Gasoline (RFG)

- Today, RFG use reduces 35 tons of VOCs and 37 tons of NO_x emissions each ozone season in Louisville and smaller amounts in Bullitt and Oldham Counties.
- RFG is our only locally enforceable mobile source control
- Northern Kentucky opted out of RFG use, why don't we?
 - As a federal control measure, removing RFG in the Louisville area would require a demonstration that the increase in emissions will not interfere with or prevent the area from reaching attainment.
 - All such reductions must be quantifiable, surplus, permanent, and enforceable.



Other Emissions Reductions from Fuels

■ Tier 2 Gasoline Program

- Finalized in 2000, Tier 2 reduced the sulfur content of gasoline by up to 90 percent, enabling the use of new emission control technologies in cars and trucks that reduce harmful air pollution.
- Vehicles meeting Tier 2 emission standards are 77 to 95 percent cleaner than earlier models.



■ Tier 3 Gasoline Program

- The Tier 3 gasoline sulfur standard makes emission control systems more effective for both existing and new vehicles and enables more stringent vehicle emissions standards.

■ Diesel Standards

- In 2006, EPA began to phase-in more stringent regulations to lower the amount of sulfur in diesel fuel to 15 ppm. This fuel is known as ultra-low sulfur diesel (ULSD).
- After 2010, EPA's diesel standards required that:
 - All highway diesel fuel supplied to the market be ULSD and
 - All highway diesel vehicles must use ULSD.

Health Initiatives - Examples

- Torend Collins, APCD Environmental Coordinator

Air Quality Index (AQI)

The AQI...

- Is an index for reporting daily air quality calculated for **five** major air pollutants
- Focuses on the health effects one may experience within a few hours/days after breathing polluted air
- Helps explain what local air quality means to individual health

■ Outcomes

- Air Quality Alerts
- Resources available on the website that provide more information about the monitored pollutants and offers ways to protect oneself from increased exposure



AQI Values	Actions to Protect Your Health From Ozone
Good (0 - 50)	None
Moderate (51 - 100*)	Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.
Unhealthy for Sensitive Groups (101 - 150)	The following groups should reduce prolonged or heavy outdoor exertion: <ul style="list-style-type: none">- People with lung disease, such as asthma- Children and older adults- People who are active outdoors
Unhealthy (151 - 200)	The following groups should avoid prolonged or heavy outdoor exertion: <ul style="list-style-type: none">- People with lung disease, such as asthma- Children and older adults- People who are active outdoors Everyone else should limit prolonged outdoor exertion.
Very Unhealthy (201 - 300)	The following groups should avoid all outdoor exertion: <ul style="list-style-type: none">- People with lung disease, such as asthma- Children and older adults- People who are active outdoors Everyone else should limit outdoor exertion.

Health Equity Report (HER)

- The 2017 HER is...
 - A report for policy makers and the community that identifies 21 health outcomes and examines 11 root causes
 - A report that **demonstrates** how root causes have different impacts at every life stage and can have cumulative effects over time
 - Shows how health impacts affect the most vulnerable communities
- Outcomes
 - For the Environmental Quality root cause...
 - Offers best practices and resources the community, local government and leaders can use to create long-term solutions to reduce asthma and other health issues in the community



EPA Environmental Justice Collaborative Problem-Solving (EJCPS) Cooperative Agreement Program

- EJCPS is...
 - A funding opportunity that supports community-based organizations as they develop/implement community-driven solutions that address environmental and/or public health issues
 - Focus area = orgs working in/with underserved communities—communities with environmental justice concerns and/or vulnerable populations

- Outcomes
 - Raises awareness around environmental and public health issues
 - Provides a resource to support data/information that can be used to find solutions for environmental and/or public health concerns



The screenshot shows the EPA website with the title "Environmental Justice Collaborative Problem-Solving (EJCPS) Cooperative Agreement". Below the title, it states "Detailed information about this program is below:" and provides a table with details about the program.

Category	Information About This Specific Program
Title	Environmental Justice Collaborative Problem-Solving (EJCPS) Cooperative Agreement, Catalogue of Federal Domestic Assistance (CFDA) Number 66.306
Purpose	The program provides funding to support community-based organizations in their efforts to collaborate and partner with local stakeholder groups (e.g., local businesses and industry, local government, medical providers, and academia) as they develop and implement solutions that address environmental and/or public health issues for underserved communities. The term "underserved community" refers to a community with environmental justice concerns and/or vulnerable populations, including minority, low income, rural, tribal, and indigenous populations. The long-term goals of the EJCPS Program are to help build the capacity of communities with environmental justice concerns and to create self-sustaining, community-based partnerships that will continue to improve local environments in the future.




Outreach and Education Initiatives - Examples

- Torend Collins, APCD Environmental Coordinator

APCD Clearing the Air Workshop Series

- The Workshop Series..
 - Increases the accessibility of information related to APCD's work
 - Increases APCD's awareness of community concerns
 - Provides accurate information about air quality in Louisville, **including the challenges *and* successes**
- Outcomes
 - Creates future engagement opportunities
 - Results in one-on-one communication between with the community; informal forum for feedback



CLEARING THE AIR

An APCD Workshop Series

July 16	APCD 101/Louisville's Air Quality
July 30	Air Quality & Health/Reducing My Pollution Impact
Aug. 13	Odors: Reporting and Responding
Aug. 27	The APCD Regulatory Process
Sept. 10	How We Monitor Air Quality
Sept. 22	Technical Workshop* (Understanding Risk/EJ Screen/TRI/NATA/BenMap)
Sept. 24	The STAR Program/Environmental Justice


Workshops held at the Louisville Free Public Library, 301 York St.
Each session is 5:30-7 p.m.
(*Technical Workshop 10 a.m. - 2 p.m. Registration Required. Send email to ClearingTheAir@louisvilleky.gov
www.louisvilleky.gov/APCD







QUESTIONS?
Call us at
(502) 574-6000



CLEARING THE AIR

2019 APCD Workshop Series





Are you curious about the air you breathe, what's in it, and how it's protected? Join us at our free monthly workshops to get an in-depth look at how we keep the air clean.

FEBRUARY 18	JULY 15
MARCH 18	AUGUST 19
APRIL 15	SEPTEMBER 16
MAY 20	OCTOBER 21
JUNE 17	NOVEMBER 18

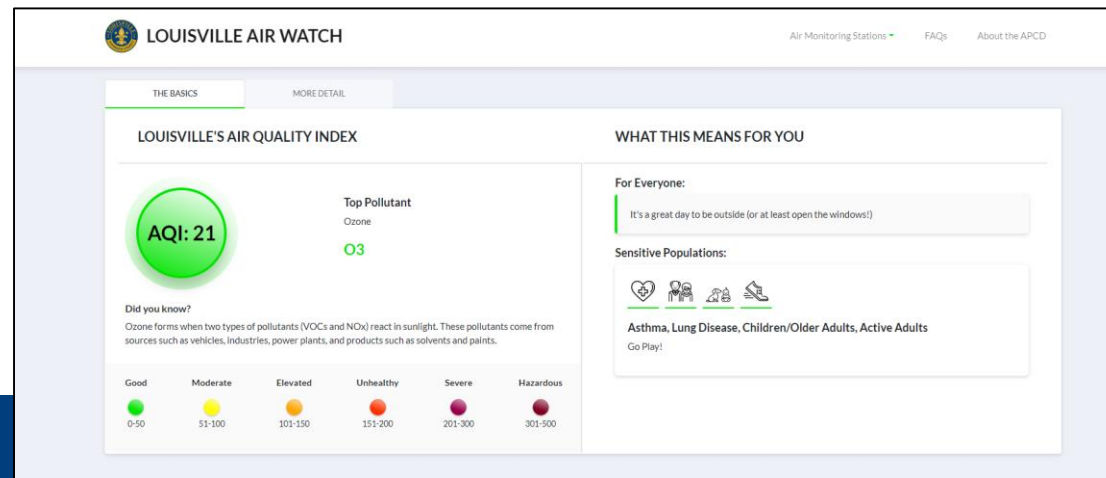
6 p.m.-7:30 p.m. | Louisville Free Public Library, 301 York St.

For more info, go to www.louisvilleky.gov/APCD
(502) 574-6000



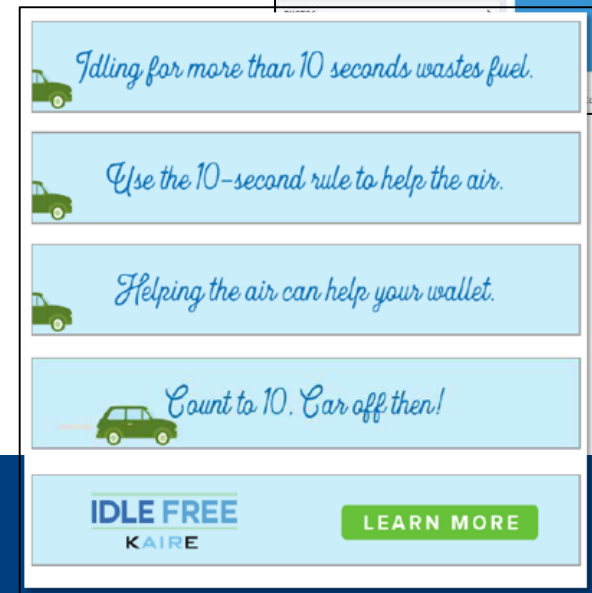
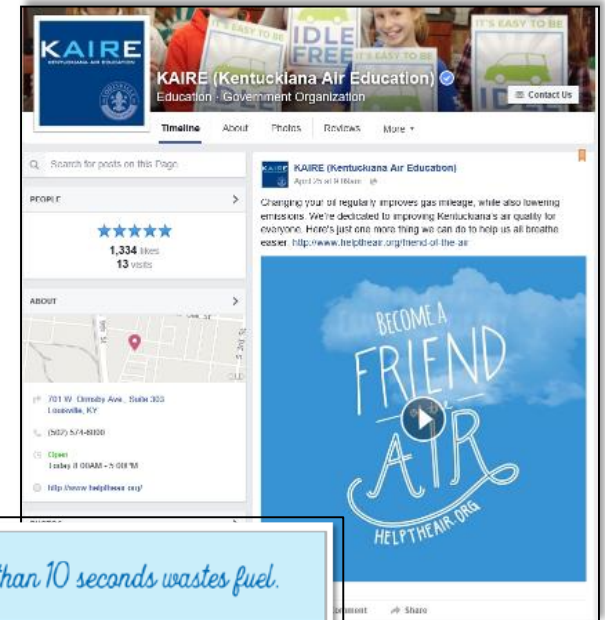
Louisville Air Watch

- Provides real-time air quality data from EPA-approved air monitors located throughout Kentuckiana
- Outcomes:
 - Offers a better way to view and understand air quality data broken down by pollutant
 - Will also provide information on air toxics emissions from monitoring sites in Louisville Metro



Kentuckiana Air Education (KAIRE) Program

- The KAIRE Program...
 - Increases awareness of the impact individual choices have on local air quality
 - Encourages behavioral change
 - Provides programs centered around idling (Idle Free Schools/Businesses/Neighborhoods)
 - Promotes key issues on environmental and health impacts
- Outcomes
 - **Changes individual habits** = using alternative modes of transportation (e.g. ridesharing, public transit, electric scooters etc.)
 - Reduces emissions contributing to ground-level ozone and



Discussion & Questions

- All Attendees

Meeting Wrap-Up

- MPSG Co-Chairs

Thank you!



Louisville Metro Air Pollution Control District

701 W. Ormsby Ave.

Ste. 303

Louisville, KY 40203

(502) 574-6000

www.louisvilleky.gov/APCD